

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PN0273 - PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/NO 03/00444	International filing date (day/month/year) 29/12/2003	(Earliest) Priority Date (day/month/year) 30/12/2002
Applicant AMERSHAM HEALTH AS		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 10 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

PEPTIDES THAT BIND TO THE HEPARIN BINDING DOMIAN OF VEGF AND VEGFR-2

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

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International application No.
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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 10
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☒ Claims Nos.: 1, 3-10 (all partly)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Claims Nos.: 10

Claim 10 relates to a method of treatment of the human or animal body by surgery or by therapy or diagnostic methods practised on the human or animal body (PCT Rule 39.1(iv)). Nevertheless, a search has been executed for this claim. The search has been based on the alleged effects of the compounds or compositions.

Continuation of Box I.2

Claims Nos.: 1, 3-10 (all partly)

The present claim 1 relates inter alia to a peptide comprising the amino acid sequence of formula I. The initial phase of the search for such peptides revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claim may be said to define subject-matter for which protection might legitimately be sought (Article 6 PCT). For these reasons, a meaningful search over the whole breadth of the claim is impossible.

In addition, present claim 1 relates to an extremely large number of possible peptides. Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the peptides. It seems highly unlikely that all the possible peptides would actually bind the heparin binding domain of VEGF and VEGFR-2, as is the desired function according to the description. In the present case, the claim so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

Consequently, the search has mainly been focused on the peptides defined with formula II, the peptides according to claim 2 and the peptides actually manufactured in examples 1-3. The search has also been focused at the idea of peptides capable of binding the heparin binding domain of the VEGF and its receptor VEGFR-2.

Additional claims relating to the peptides according to claim 1 have been searched with the same limitations.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K2/00 C07K7/06 C07K7/08 A61K48/03 //C07K14/475,
C07K14/71

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal, BIOSIS, WPI Data, PAJ, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 52875 A (LUDWIG INST CANCER RES) 26 July 2001 (2001-07-26) abstract page 19, line 10 -page 20, line 30 page 26, line 1 - line 19; examples	1-10
X	WO 99 40947 A (ESHIMA DENNIS ; POLLAK ALFRED (CA); THORNBAC JOHN (CA); FAUCONNIER) 19 August 1999 (1999-08-19) abstract page 12, line 2 - line 13; examples 2,6 claims --- -/--	1-10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

5 May 2004

Date of mailing of the international search report

03 JUN 2004

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TERESE PERSSON /EÖ

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NO 03/00444

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE HCAPLUS [Online] MILLENNIUM PHARMACEUTICALS, INC.: "Humanized anti mammalian CC-chemokine receptor 2 (CCR2) antibodies and uses in therapeutics, prophylaxis and diagnosis" retrieved from STN INTERNATIONAL Database accession no. 2001:582061 XP002279014 see sequence in the end, aa 60-68 abstract -& WO 01 57226 A (MILLENNIUM PHARMACEUTICALS, INC.) 9 August 2001 (2001-08-09) the whole document</p>	1
X	<p>WO 97 02479 A (UNIV YALE ;CAI XIAOHONG (US); GAREN ALAN (US)) 23 January 1997 (1997-01-23) sequence 48, aa 94-105</p>	1
X	<p>US 5 981 229 A (PEARCE BARBARA J ET AL) 9 November 1999 (1999-11-09) sequence 58, aa 127-135</p>	1
X	<p>WO 99 14321 A (INST MEDICAL W & E HALL ;PUTHALAKATH HAMSA (AU); REILLY LORRAINE O) 25 March 1999 (1999-03-25) sequence 6, aa 86-94</p>	1
X	<p>US 5 948 667 A (MOLONEY MAURICE M ET AL) 7 September 1999 (1999-09-07) sequence 2, aa 60-69</p>	1
X	<p>WO 99 10498 A (HELENTJARIS TIMOTHY G ;PIONEER HI BRED INT (US); WANG XUN (US); BO) 4 March 1999 (1999-03-04) sequence 11, aa 14-22</p>	1
A	<p>EL-SHEIKH AMR ET AL: "A novel vascular endothelial growth factor heparin-binding domain substructure binds to glycosaminoglycans in vivo and localizes to tumor microvascular endothelium." CANCER RESEARCH, vol. 62, no. 23, 1 December 2002 (2002-12-01), pages 7118-7123, XP002279013 ISSN: 0008-5472 (ISSN print) the whole document</p>	1-10
A	<p>US 2002/114780 A1 (HAMILTON JOHN ET AL) 22 August 2002 (2002-08-22) page 3, column 1, paragraph 5</p>	1-10

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 03 007689 A (HUBBELL JEFFREY A ;SCHOENMAKERS RONALD (CH); ETH OF ZURICH (CH); U) 30 January 2003 (2003-01-30) abstract page 23, line 9 - line 14; examples 1,3 claims ---	1-10
P,X	WO 03 074005 A (POCHON SIBYLLE ;ARBOGAST CHRISTOPHE (FR); BUSSAT PHILIPPE (FR); BR) 12 September 2003 (2003-09-12) abstract page 102, line 10 - line 11; claims -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NO 03/00444

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0152875	A	26-07-2001	AU 2955401 A EP 1248642 A1 WO 0152875 A1 US 2002065218 A1	31-07-2001 16-10-2002 26-07-2001 30-05-2002
WO 9940947	A	19-08-1999	AU 757554 B2 AU 2406699 A CA 2320339 A1 WO 9940947 A2 EP 1056773 A2 US 2003194373 A1	27-02-2003 30-08-1999 19-08-1999 19-08-1999 06-12-2000 16-10-2003
WO 0157226	A	09-08-2001	AU 3327701 A CA 2399080 A1 EP 1255844 A1 JP 2003521927 T WO 0157226 A1 US 2002150576 A1	14-08-2001 09-08-2001 13-11-2002 22-07-2003 09-08-2001 17-10-2002
WO 9702479	A	23-01-1997	WO 9702479 A2 US 6140470 A	23-01-1997 31-10-2000
US 5981229	A	09-11-1999	US 5928900 A AU 709405 B2 AU 7680994 A CA 2170726 A1 EP 0721506 A1 FI 960977 A JP 9504686 T NO 960839 A NZ 273497 A WO 9506732 A2	27-07-1999 26-08-1999 22-03-1995 09-03-1995 17-07-1996 30-04-1996 13-05-1997 19-04-1996 25-03-1998 09-03-1995
WO 9914321	A	25-03-1999	AU 752360 B2 AU 9145798 A WO 9914321 A1 CA 2304124 A1 EP 1015578 A1 JP 2001524301 T	19-09-2002 05-04-1999 25-03-1999 25-03-1999 05-07-2000 04-12-2001
US 5948667	A	07-09-1999	US 6137032 A	24-10-2000
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WO 03007689	A	30-01-2003	CA 2454418 A1 WO 03007689 A2 US 2003064410 A1	30-01-2003 30-01-2003 03-04-2003

Information on patent family members

PCT/NO 03/00444

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03074005 A	12-09-2003	WO 03074005 A2	12-09-2003